

## 5 watt dc-dc converters

- 24 PIN DIL PACKAGE
- LOW PROFILE METAL PACKAGE
- HIGH EFFICIENCY UP TO 80%
- WIDE 4:1 INPUT RANGE
- INPUT/OUTPUT ISOLATION: 1500 or 3500VDC
- OPERATING TEMPERATURE: -40°C ... +85°C
- PIN-COMPATIBLE WITH OTHER MANUFACTURERS
- CONTINUOUS SHORT CIRCUIT PROTECTION

## GENERAL DESCRIPTION

The AM5TW series is a family of cost effective 5W single and dual outputs DC-DC converters. These converters combine nickel-coated copper package in a 24-pin DIL compatible case with high performance features such as 1500VDC or 3500VDC input/output isolation voltage, continuous short circuit protection with automatic restart and tight line / load regulation. Wide range devices operate over 4:1 input voltage range providing stable output voltage. Devices are encapsulated using flame re-

tardant resin. Input voltages of 24 and 48VDC with output voltages of 3.3, 5, 7.2, 9, 12, 15, 18, 24,  $\pm 3.3$ ,  $\pm 5$ ,  $\pm 7.2$ ,  $\pm 9$ ,  $\pm 12$ ,  $\pm 15$ ,  $\pm 18$  or  $\pm 24$ VDC. High performance features include high efficiency operation up to 80% and output voltage accuracy of  $\pm 1\%$  maximum. All models are packaged in a low profile 31.75x20.32x10.16mm 24 pin DIL nickel-coated copper case. Operation is specified over the full operating temperature range of -40°C to +85°C with no derating required. Cooling is by free-air convection.

## ELECTRICAL SPECIFICATIONS

Specifications typical at +25°C, nominal input voltage, rated output current unless otherwise specified

### Input Specifications:

Voltage range	24 VDC, 9~36VDC 48 VDC, 18~72VDC
Filter	$\pi$ (Pi) Network

### Isolation Specifications:

Rated voltage	1500, 3500VDC
Leakage current	1mA
Resistance	> 1000MOhm
Capacitance	80pF, typ

### General Specifications:

Efficiency	74% to 80%
Switching frequency	250KHz, typ

### Physical Specifications

Dimensions	31.75x20.32x10.16mm 1.25x0.80x0.40inches
Weight	26g
Case material	Nickel-Coated Copper

### Output Specifications:

Voltage accuracy	$\pm 1\%$ , max
Voltage balance (dual outputs)	$\pm 1\%$
Ripple and noise (at 20MHz BW)	60mVp-p, max
Short circuit protection	Continuous
Short circuit restart	Automatic
Line voltage regulation	$\pm 0.5\%$ , max
Load voltage regulation	$\pm 0.5\%$ , max
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$

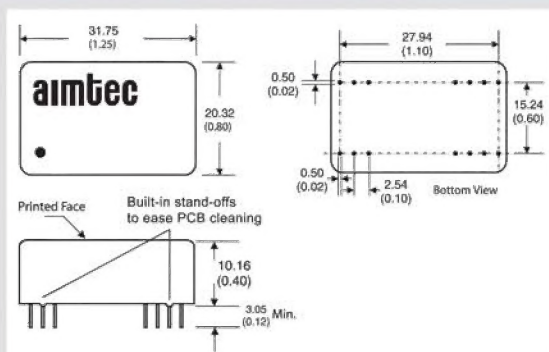
### Environmental Specifications:

Operating temperature (ambient)	-40°C ... +85°C
Storage temperature	-55°C ... +125°C
Derating	None required
Humidity (non-condensing)	Up to 90%
Cooling	Free-air Convection

MTBF: >1112000hrs (MIL-HDBK-217F, Ground Benign,  $t=+25^{\circ}\text{C}$ )

Specifications are subject to change without notification

## OUTLINE DIMENSIONS & PIN CONNECTIONS



Pin	1500VDC		3500VDC	
	Single	Dual	Single	Dual
1	+V Input	+V Input	Omitted	Omitted
2	N.C.	-V Output	-V Input	-V Input
3	N.C.	Common	-V Input	-V Input
9	Omitted	Omitted	N.C.	Common
10	-V Output	Common	Omitted	Omitted
11	+V Output	+V Output	N.C.	-V Output
12/13	-V Input	-V Input	Omitted	Omitted
14	+V Output	+V Output	+V Output	+V Output
15	-V Output	Common	Omitted	Omitted
16	Omitted	Omitted	-V Output	Common
22	N.C.	Common	+V Input	+V Input
23	N.C.	-V Input	+V Input	+V Input
24	+V Input	+V Input	Omitted	Omitted



## MODELS

### Single output

Models		Input voltage	Output voltage	Output current max.
Isolation 1500VDC	Isolation 3500VDC			
AM5TW-2403S	AM5TW-2403SH35	9VDC - 36VDC	3.3VDC	1200mA
AM5TW-2405S	AM5TW-2405SH35		5VDC	1000mA
AM5TW-2407S	AM5TW-2407SH35		7.2VDC	694mA
AM5TW-2409S	AM5TW-2409SH35		9VDC	556mA
AM5TW-2412S	AM5TW-2412SH35		12VDC	417mA
AM5TW-2415S	AM5TW-2415SH35		15VDC	333mA
AM5TW-2418S	AM5TW-2418SH35		18VDC	278mA
AM5TW-2424S	AM5TW-2424SH35		24VDC	208mA
AM5TW-4803S	AM5TW-4803SH35	18VDC - 72VDC	3.3VDC	1200mA
AM5TW-4805S	AM5TW-4805SH35		5VDC	1000mA
AM5TW-4807S	AM5TW-4807SH35		7.2VDC	694mA
AM5TW-4809S	AM5TW-4809SH35		9VDC	556mA
AM5TW-4812S	AM5TW-4812SH35		12VDC	417mA
AM5TW-4815S	AM5TW-4815SH35		15VDC	333mA
AM5TW-4818S	AM5TW-4818SH35		18VDC	278mA
AM5TW-4824S	AM5TW-4824SH35		24VDC	208mA

### Dual output

Models		Input voltage	Output voltage	Output current max.
Isolation 1500VDC	Isolation 3500VDC			
AM5TW-2403D	AM5TW-2403DH35	9VDC - 36VDC	±3.3VDC	±600mA
AM5TW-2405D	AM5TW-2405DH35		±5VDC	±500mA
AM5TW-2407D	AM5TW-2407DH35		±7.2VDC	±347mA
AM5TW-2409D	AM5TW-2409DH35		±9VDC	±278mA
AM5TW-2412D	AM5TW-2412DH35		±12VDC	±209mA
AM5TW-2415D	AM5TW-2415DH35		±15VDC	±167mA
AM5TW-2418D	AM5TW-2418DH35		±18VDC	±139mA
AM5TW-2424D	AM5TW-2424DH35		±24VDC	±104mA
AM5TW-4803D	AM5TW-4803DH35	18VDC - 72VDC	±3.3VDC	±600mA
AM5TW-4805D	AM5TW-4805DH35		±5VDC	±500mA
AM5TW-4807D	AM5TW-4807DH35		±7.2VDC	±347mA
AM5TW-4809D	AM5TW-4809DH35		±9VDC	±278mA
AM5TW-4812D	AM5TW-4812DH35		±12VDC	±209mA
AM5TW-4815D	AM5TW-4815DH35		±15VDC	±167mA
AM5TW-4818D	AM5TW-4818DH35		±18VDC	±139mA
AM5TW-4824D	AM5TW-4824DH35		±24VDC	±104mA

## INPUT CURRENT

### No Load / Full Load

24 Vin models

17 / 270mA, typ

48 Vin models

18 / 135mA, typ